

Remarks

Support for the amendments to the written description

The amendments to the written description are supported by the specification as filed; no new matter has been added. The vast majority of the amendments to the written description were made simply to italicize the genus/species names of organisms, as requested by the Examiner. In two cases, the spelling of genus/species names was corrected (*Staphylococcus* and *Streptococcus*, on page 3). The only other amendment to the written description was made to capitalize the trademark "Act-HIB," on page 8, and to add descriptive information of the trademarked product in compliance with MPEP 608.01(v).

Support for the amendments to the claims

The amendments to the previously pending claims are minor in nature and do not add new subject matter. The new claims merely recite the disclosed and claimed compositions with particular amounts of trehalose, as disclosed in the specification.

Specification Objections

All genus/species names of organisms have been italicized and all trademarks have been capitalized, as requested by the Examiner. Accordingly, the applicants respectfully request withdrawal of the objections to the specification.

Claim Objections

The genus/species name recited in claim 2 has been italicized and claim 9 has been amended to recite "A method," rather than "The method," as requested by the Examiner. Accordingly, the applicants respectfully request withdrawal of the objections to the claims.

§ 112 Rejection

Claims 9 and 10 were rejected under 35 U.S.C. § 112, second paragraph for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. In particular, the Examiner alleged that the recited methods do not clearly specify the steps of the method. In response, the applicants respectfully point out that claim 9 recites "adding trehalose to the vaccine composition," which is a step in the claimed method. Accordingly, the applicants respectfully request withdrawal of the § 112 rejection.

§ 102 Rejection

Claims 1-4 were rejected under 35 U.S.C. § 102(e) as anticipated by LaPosta *et al.* The standard for anticipation is well-settled: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegall Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). In this case, the cited reference, LaPosta *et al.*, fails to teach the particular combination of elements now being claimed. LaPosta *et al.* is focused on solving the problem of settling out and aggregation in prior art lyophilized compositions containing monophosphoryl lipid A by adding a sugar prior to freezing or lyophilization. (Col. 3, ll. 10-13) One of the several aspects of the invention is a vaccine composition comprising a lyophilized composition and reconstituted aqueous colloidal suspension described therein with an immunologically effective amount of an antigen or antigens. (Col. 4, ll. 4-8) Among the antigens described in col. 4, l. 26 – col. 5, l. 6, are polysaccharides chemically linked to a protein carrier. Col. 4, ll. 60-64. **Importantly, however, nowhere does LaPosta *et al.* specifically disclose the particular combination of an antigen consisting of trehalose and a polysaccharide bound to a carrier protein.** Nor does LaPosta *et al.* contain teachings pointing to this particular combination. Accordingly, the applicants respectfully submit that LaPosta *et al.* does not anticipate claims 1-4 and request withdrawal of the § 102 rejection.

§ 102/103 Rejection

Claims 9-10 were rejected under 35 U.S.C. § 102(e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over, La Posta *et al.* While acknowledging that LaPosta *et al.* fails to teach the recited quantity of trehalose in the claimed vaccine composition (which establishes that claims 9 and 10 are novel over LaPosta) the Examiner stated that "it would have been obvious at the time the invention was made to add specific quantities of trehalose to the vaccine compositions of LaPosta *et al.* because the addition of specific quantities of trehalose would be well within the level of skill in the art and would be a matter of optimizing experimental parameters." The applicants respectfully disagree.

The present invention is not obtained by a mere optimization of experimental parameters. The addition of trehalose, as opposed to other sugars tested by the applicants, has the surprising effect of preserving the immunogenicity of the polysaccharide-protein conjugate without the need to lyophilize or freeze dry it:

Surprisingly, and without this being deducible from the known properties of trehalose, it has now been found that this compound makes it possible to preserve the immunogenicity of vaccine compositions, even in the case where the latter might not be subjected to a rise in temperature or to a drying process.

On the other hand, other sugars tested which are known to have properties similar to trehalose, in particular lactose, did not lead to satisfactory results.

McDonnell Boehnen Hulbert & Berghoff LLP
300 South Wacker Drive, 32nd Floor
Chicago, IL 60606
(312)913-0001

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Specification page 5, lines 9-18. The examples demonstrate that liquid compositions according to the invention maintain immunogenicity for at least 3-6 months. LaPosta *et al.* fails to provide any suggestion to combine trehalose with a polysaccharide-protein conjugate with any expectation that the immunogenicity of the polysaccharide would be preserved as taught in the present application. Nor does LaPosta *et al.* teach an amount of trehalose that is 3-12% by mass, as appears in claim 10 and other claims. For these reasons, the applicants respectfully submit that the claims are not obvious in light of LaPosta, and request withdrawal of the §102/103 rejection.


§ 103 Rejection

Claims 1-8 were rejected under 35 U.S.C. § 103(a) as unpatentable over Anderson *et al.* in view of Roser *et al.* As with the § 103 rejection in view of LaPosta, however, Anderson and Roser fail to render claims 1-8 obvious in view of the surprising result that the addition of trehalose to a polysaccharide-protein conjugate preserves the immunogenicity of the conjugate. Accordingly, the applicants respectfully submit that claims 1-8 cannot be obviousness in light of Anderson and Roser and therefore request withdrawal of the § 103 rejection.

Conclusion

In view of the foregoing, the applicant respectfully requests reconsideration and withdrawal of the pending § 112, § 102, and § 103 rejections. If there are any questions or comments regarding this response or application, the Examiner is encouraged to contact the undersigned attorney as indicated below.

Respectfully submitted,


Michael St. Greenfield
Registration No. 37,142

Date: March 12, 2004

Telephone: (312) 913-0001
Facsimile: (312) 913-0002

McDonnell Boehnen Hulbert & Berghoff
300 South Wacker Drive
Chicago, IL 60606